COMPLETE LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13 (canceled)

Claim 14 (original) A cooling assembly for an induction furnace comprising:

a dome which defines an interior chamber;

cooling means for cooling the dome;

a means for selectively providing fluid communication between a hot zone of the induction furnace and the dome; and

means for controlling the communicating means in accordance with at least one of:

a temperature of the hot zone, and

a temperature of the interior chamber.

Claim 15 (original) The assembly of claim 14, wherein the cooling means include:

cooling coils through which a cooling fluid is passed to cool the dome.

Claim 16 (original) The assembly of claim 14, wherein the means for selectively providing fluid communication include:

a lifting mechanism which selectively moves a cap of the furnace from a first position, in which the cap closes the hot zone from the dome interior chamber, and a second position, in which hot gas flows from the hot zone into the dome.

Claim 17 (original) An induction furnace comprising:

a susceptor which defines an interior chamber for receiving items to be treated, the susceptor being formed from graphite;

an induction coil which induces a current in the susceptor to heat the susceptor; and

a layer of flexible graphite, exterior to the susceptor, which inhibits escape of carbon vapor which has sublimed from the susceptor.

Claim 18 (original) The furnace of claim 17, further including:

a layer of powdered insulation material, packed around the layer of flexible graphite, which holds the layer of flexible graphite in contact with the susceptor.

Claim 19 (original) A method of operating a furnace comprising:

heating items to be treated in a first chamber which contains a gas;

actively cooling a second chamber which contains a gas, the second chamber being selectively fluidly connectable with the first chamber;

after the step of heating, cooling the first chamber by selectively fluidly connecting the first chamber with the second chamber, thereby allowing heat to flow from the gas in the first chamber to the gas in the second chamber.

Claim 20 (original) The method of claim 19, further including:

detecting a temperature of the second chamber; and

controlling a size of an opening between the first and second chambers to ensure that the temperature of the second chamber remains below a preselected level.

Claim 21 (original) The method of claim 19, further including:

prior to the step of heating, placing witness disks in the first chamber; and

after the step of cooling the first chamber, removing the witness disks and examining the disks to determine a maximum temperature to which each of the disks was exposed during the step of heating.

Claim 22 (original) The method of claim 19, wherein the step of heating includes heating the first chamber to a temperature of at least 3000°C.

Claim 23 (original) The method of claim 22, wherein the step of heating includes heating the first chamber to a temperature of at least 3100°C.

Claim 24 (original) The method of claim 22, further including, prior to the step of heating:

surrounding a wall of the first chamber, which is formed from graphite, with a flexible graphite material which inhibits evaporation of the graphite from the wall during the heating step.

Claim 25 (original) The method of claim 19, wherein the gas in the first and second chambers is an inert gas at a positive pressure.

Claim 26 (original) The method of claim 19, wherein the step of cooling the first chamber includes selectively fluidly connecting the first chamber with the second chamber when the temperature within the first chamber drops to about 1500°C.

Claim 27 (original) The method of claim 19, wherein the step of selectively fluidly connecting the first chamber with the second chamber includes:

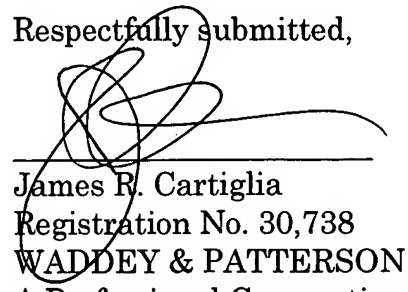
raising a cap which selectively closes the first chamber to provide an opening between the first and second chambers, a size of the opening being adjustable by raising or lowering the cap.

Claim 28 (original) The method of claim 19, further including:

mounting a dome over the first chamber to seal the first chamber from the ambient environment, the dome defining the second chamber and being spaced from the first chamber by a cap, the dome carrying a lifting mechanism which selectively lifts the cap allowing fluid communication between the first chamber and the second chamber during the cooling step.

The Commissioner is authorized to charge any deficiency or credit any overpayment associated with the filing of this Preliminary Amendment to Deposit Account 21-0010.

Respectfully submitted,



James R. Cartiglia
Registration No. 30,738
WADDEY & PATTERSON
A Professional Corporation
Customer No. 23456

ATTORNEY FOR APPLICANT

Waddey & Patterson
414 Union Street, Suite 2020
Bank of America Plaza
Nashville, TN 37219
(615) 242-2400